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June 6, 2003 (8:49am)

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### Remarks

Claims 1-11 and 14-17, 19, 20, and 22-31 remain in the application.

The Examiner has objected to Claims 23, 25, and 27 under 37 CFR 1.75(c) as being of improper independent form for failing to further limit the subject matter of the parent claims. The Examiner states that these claims recite only apparatus limitations but depend from process claims. The objections to Claims 23 and 25 in particular are traversed. There is no statutory or regulatory prohibition against apparatus limitations appearing in a process claim. Indeed, the vast majority of processes are claimed in the context of actions performed through particularly recited apparatus. Parent Claims 1 and 5 recite passing the substrate through a load lock. The objected dependent claims further restrict the type of load lock to a doubly gated one. Further, such an apparatus limitation affects the claimed process in allowing total vacuum isolation between the two transfer chambers. The Examiner is not permitted to disregard a claim limitation if it is pertinent to the invention as a whole. Isolation between transfer chambers impacts the process and thus is a pertinent limitation to the process.

Claim 27 has been amended to associate the doubly gated load lock with the process of the parent claim. New dependent Claims 29-31 have been added to require the maintenance of a pressure differential between the two chambers, as can be afforded by a doubly gated load lock.

The Examiner has rejected Claims 1-11, 14-17, 19, 20, and 22-28 under 35 U.S.C. §103(a) as being obvious over Applicants' admitted prior art (APA) in view of Maydan et al. (U.S. Patent 4,951,601, hereafter Maydan). The rejection is traversed. The Examiner has not addressed the claimed limitation that the etch chamber and the metallization chamber be attached to different transfer chambers isolatable from each other. Maydan fails to disclose this distinction for his multiple transfer chambers (col. 11, l. 51 to col. 12, l. 19). Instead, Maydan teaches "mixing" etch and deposition chambers 16-22 within a single transfer chamber (col. 12, ll. 20-27). Hence, Maydan teaches against the claimed segregation of etching and deposition

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chambers between different transfer chambers.

Further, the Examiner's argument dismissing the two pressure ranges is faulty. Maydan does not disclose a transfer chamber pressure beyond being "below atmospheric" (col. 12, l. 17). The Examiner's argument requires that the etch transfer chamber, that is the one to which the etch reactor is attached, is maintained at a pressure of no more than  $10^{-6}$  torr. The Examiner fails to find prior art for an etch transfer chamber held at  $10^{-6}$  torr. It is asserted that this is an unusually low pressure for etch reactors, which typically have operational pressures in the millitorr range. It is also an usually low temperature for a transfer chamber associated with the etch reactor. The specification describes this pressure as being typically about 150 millitorr. In the absence for a prior-art teaching, it is unobvious to reduce the etch transfer chamber pressure to the claimed low level of  $10^{-6}$  torr.

Accordingly, the unamended claims should be held allowable.

Further, the base claims have all been amended to require either passing the substrate between transfer chambers through a doubly gated load lock or maintaining the two transfer chambers at different pressures during substrate transfer therebetween. Similar limitations are already found in the unamended claims though not so clearly stated.

Note that Maydan uses the term "load lock" in a different sense than that used here. A load lock as claimed corresponds with Maydan's single slit valve 38 and possibly his interior cassette assembly 50 of FIG. 2. As was argued in the previous response, Maydan's singly gated load lock 50A of FIG. 20 is incapable of maintaining his transfer chambers 80, 80A at different pressures during the transferring of wafers therebetween. Accordingly, the claims should be held additionally allowable.

Entry of substantive claim amendments is requested since even the unamended claims should be allowed. Furthermore, the vacuum isolation between transfer stations was present in prior claims, e.g. the isolation of Claims 5 and 9 and the doubly gated vacuum passageway of Claim 14, so that the specific recitations of maintaining pressure differentials should have been considered in the prior rejections.

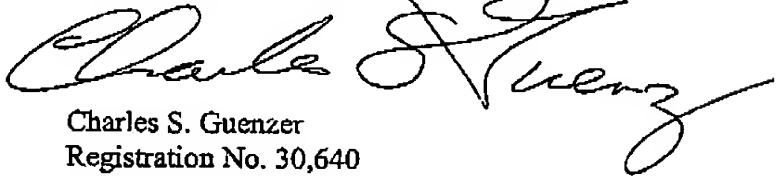
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In view of the above amendments and remarks, consideration and allowance of all claims are respectfully requested. If the Examiner believes that a telephone interview would be helpful, he is invited to contact the undersigned attorney at the listed telephone number, which is on California time.

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